**ABB**

# Section 4
# Multifunction Timers

## Multifunction Timers

**4**

## Relay Output

## Solid State Output

## DIN Rail Mounting Multifunction Timers

■ CT-MFS
■ CT-MBS
■ CT-MVS
■ CT-MFE
■ CT-MFD
■ CT-MKE

Product pages are not included in this catalog.
Go to: www.ssac.com/s4.pdf
Click on the Product Name
(ie: CT-MFS) to open the catalog page.
[Adobe Acrobat Reader is required]

# Multifunction Timers - Fast Facts

### TRDU Series Universal Time Delay Relay
- 21 Functions are Switch Selectable
- Switch Selectable Modes & Time Ranges
- 0.1 s to 1705 h in 8 Ranges
- 10 Amps, SPDT or DPDT Isolated Relay Contacts
- 8 or 11 Pin Plug-in Base
- 1.78 x 2.39 x 3.1 Inches (45 x 61 x 79 mm)
- Popular Part Numbers are In Stock
- UL Recognized, CSA Certified, CE

### TRU Series Universal Time Delay Relay
- 6 Functions are Switch Selectable
- Knob Adjustable Time Delay
- 0.1 s to 1000 m in 6 Ranges
- Universal Voltage 19 to 264VAC and 19 to 30VDC
- 10 Amps, SPDT or DPDT Isolated Relay Contacts
- 1.78 x 2.39 x 3.44 Inches (45 x 61 x 87 mm)
- In Stock
- UL Recognized, CSA Certified, CE

### 22.5 mm - CT-MBS or CT-MFS - DIN Rail Mounting
- 8 Functions are Switch Selectable
- Multirange - 0.05 s to 300 h in 10 Ranges
- Input Voltages of 24 to 240VAC/DC (CT-MFS)
- Input Voltages of 12 to 240V in 3 Ranges (CT-MBS)
- 2 SPDT, 4 Amps Resistive, Isolated Relay Contacts
- Selectable Instantaneous SPDT Contact
- 1 s to 300 h Adjustable Time Delay in 10 Ranges
- LED Indicators; Dual Camphor Screw Terminals
- DIN3 Mount or Surface Mount (w/ Adaptor)
- 0.886 x 3.07 x 3.98 In. (22.5 x 78 x 101 mm)
- UL/cUL Listed, CE

### 22.5 mm - CT-MVS - DIN Rail Mounting
- 8 Functions are Switch Selectable
- Multirange - 0.05 s to 300 h in 10 Ranges
- Input Voltages of 24 to 240V in 2 Ranges
- 2 SPDT, 4 Amps Resistive, Isolated Relay Contacts
- Selectable Instantaneous SPDT Contact
- 1 s to 300 h Adjustable Time Delay in 10 Ranges
- LED Indicators
- Dual Camphor Screw Terminals
- DIN3 Mount or Surface Mount (w/ Adaptor)
- 0.886 x 3.07 x 3.98 In. (22.5 x 78 x 101 mm)
- UL/cUL Listed, CE

### 22.5 mm - CT-MFE - DIN Rail Mounting
- 6 Functions are Switch Selectable
- 0.05 s to 100 h in 8 Ranges
- 24 to 240V AC/DC
- 4 Amps Resistive, SPDT Isolated Relay Contacts
- 2 LED Indicators
- Screw Terminal Connections
- DIN3 Mount or Surface Mount (w/adaptor)
- 0.886 x 3.07 x 3.09 In. (22.5 x 78 x 78.5mm)
- UL/cUL Listed, CE

### 17.5mm - CT-MFD - DIN Rail Mounting
- 7 Functions are Switch Selectable
- 0.05 s to 100 h in 7 Ranges
- 24 to 240V AC; 24 to 48V DC
- 6 Amps Resistive, SPDT Isolated Relay Contacts
- 3 LED Indicators
- Screw Terminal Connections
- DIN3 Mount or Surface Mount (w/adaptor)
- 0.69 x 2.48 x 2.76 in (17.5 x 63 x 70 mm)
- UL/cUL Listed, CE

# Selection Guide
## Multifunction Timers

For detailed product specifications, refer to catalog pages.

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| | Knob or Switch Adjust Plug-in | | Knob or Switch Adjust | S Series Onboard Adjust | | | | | E Series Onboard Adjust | | D Series Onboard Adjust |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Series** | TRDU | TRU | ASQU/ASTU DSQU/DSTU | CT-MFS | CT-MVS | CT-MXS | CT-MBS | CT-WBS | CT-MFE | CT-MKE | CT-MFD |
| **Output Form** | SPDT or DPDT | SPDT or DPDT | Solid State | DPDT | SPDT or DPDT | DPDT | DPDT | DPDT | SPDT | Solid State | SPDT or DPDT |
| **Function and Features      Page** | 4.4 | 4.6 | 4.8 & 4.10 | Product pages are not included in this catalog. Go to: www.ssac.com/sg4.pdf Click on the Product Name (ie: CT-MFS) [Adobe Acrobat Reader is required] | | | | | | | |
| Delay on Make (ON-delay) | • | • | • | • | • | | • | • | • | • | • |
| Delay on Break (OFF-delay) | • | • | • | • | • | | • | | • | | • |
| Delay on Break (Inverted) | • | | | | | | | | | | |
| Single Shot (Pulse Former) | • | • | • | • | • | • | • | | • | | • |
| Single Shot Trailing Edge | • | | | | | | | | | | |
| Single Shot Retriggerable (Motion Detector) | • | • | | | | | | | | | |
| Single Shot (Inverted) | • | | | | | | | | | | |
| Interval (Impulse ON) | • | • | • | • | • | • | • | • | • | • | • |
| Interval, Trailing Edge (Impulse OFF) | | | | • | • | ! | • | | • | | • |
| Interval/Recycling (Equal) | • | | | | | | | | | | |
| Recycling (Pulse Generator) (Both Times Adjustable) | • | | | | | • | | | | | |
| Recycling (Equal Times ON First) | • | • | • | • | • | | • | • | • | • | • |
| Recycling (Equal Times OFF First) | | | | • | • | | • | • | • | • | • |
| Fast Function | | | | • | • | • | • | • | | | |
| **Dual Functions** | | | | | | | | | | | |
| Star Delta Motor Starting | | | | • | • | | • | | | | |
| Delay on Make & Delay on Break | • | | | • | • | • | • | | | | |
| Delay on Make & Single Shot | • | | | | | | | | | | |
| Delay on Make & Interval | • | | | | | • | | • | | | |
| Delay on Make (Accumulative) & Interval | • | | | | | | | | | | |
| Delay on Make & Recycling (Equal) | • | | | | | | | | | | |
| Delay on Break & Recycle (Equal) | • | | | | | | | | | | |
| Single Shot & Recycle (Equal Times) | • | | | | | | | | | | |
| Interval & Delay on Make | • | | | | | | | | | | |
| **General Features** | | | | | | | | | | | |
| Instantaneous Contacts | | | | • | • | | • | • | | | |
| Accumulative Timing | • | | | • | • | | • | | | | |
| Solid State Output | | | • | | | | | | | • | |
| Relay Output | | • | | • | • | • | • | • | • | | • |
| Knob or Onboard Adjustment | | • | • | • | • | • | • | • | • | | • |
| Switch Adjustment | • | | • | | | | | | | | |
| External Adjustment | | | | • | • | • | • | • | | | |
| Dimensions (w x h x d)      in | 1.78 x 2.39 x ≤3.44 | | 0.69 x 3.0 x ≤2.41 | 0.89 x 3.07 x ≤3.94 | | | | | 0.89 x 3.07 x ≤3.09 | | 0.69 x ≤3.15 x 2.28 |
| mm | 45.2 x 60.7 x 87.4 | | 17.5 x 76.2 x 61.2 | 22.5 x 78 x 100 | | | | | 22.5 x 78 x 78.5 | | 17.5 x ≤80 x 58 |

! Interval & Impulse OFF

SGMF1B02   12.05.06

# Multifunction
## TRDU Series
## Time Delay Relay

### Description
The TRDU Series is a versatile universal time delay relay with 21 selectable single and dual functions. The dual functions replace up to three timers required to accomplish the same function. Both the function and the timing range are selectable with switches located on the face of the unit. Two LED's indicate input voltage and output status. This device offers full 10 A isolated relay output contacts in either SPDT or DPDT. The TRDU replaces hundreds of part numbers, thereby, reducing your stock inventory requirements.

**4**

- Microcontroller +/-0.1% Repeat Accuracy
- Multifunction – 21 Timing Functions
- Multirange – 0.1 s ... 1,705 h in 8 Ranges
- Switch Selectable Modes, Time Delay, & Ranges
- AC and DC Input Voltages are Available
- 10 A, Isolated SPDT or DPDT Output Contacts

Approvals:

### Accessories

Panel mount kit
P/N: **BZ1**
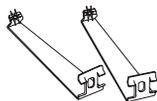
Hold down clips
P/Ns:
**PSC8** (NDS-8)
**PSC11** (NDS-11)
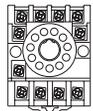
11 pin socket
P/N: **NDS-11**
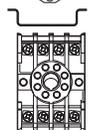
Octal
8 pin socket
P/N: **NDS-8**
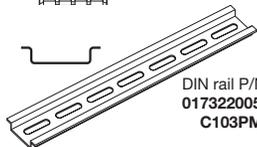
DIN rail P/Ns:
**017322005** (Steel)
**C103PM** (Al)

See accessory pages for specifications.

### Connection



8 Pin DPDT

8 Pin SPDT
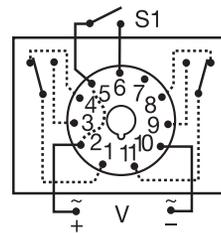
11 Pin DPDT

V = Voltage     S1 = Initiate Switch
Relay contacts are isolated. Dashed lines are internal connections.

### 21 Functions

Five switches are provided to set one of 10 single or 11 dual modes of operation.
Single Functions-
   * Delay on Make
      Delay on Break
   * Recycle (ON Time First, Equal Recycle Delays)
      Single Shot
   * Interval
      Trailing Edge Single Shot
      Inverted Single Shot
      Inverted Delay on Break
      Accumulative Delay on Make
      Retriggerable Single Shot (Motion Detector)
Dual Functions -
      Delay on Make/Delay on Break
   * Delay on Make/Recycle
      (ON Time First, Equal Recycle Delays)
   * Delay on Make/Interval
      Delay on Make/Single Shot
   * Interval/Recycle
      (ON Time First, Equal Recycle Delays)
      Delay on Break/Recycle
      (ON Time First, Equal Recycle Delays)
      Single Shot/Recycle
      (ON Time First, Equal Recycle Delays)
   * Recycle - Both Times Adjust. (ON Time First)
   * Recycle - Both Times Adjust. (OFF Time First)
   * Interval/Delay on Make
      Accumulative Delay on Make/Interval

*9 Functions in 8 PIN DPDT UNITS

### Ordering Table

| TRDU | X | | X |
|---|---|---|---|
| **Series** | **Input** | | **Base Connection** |
| | **12D** - 12 V DC | | **1** - 8 pin DPDT * |
| | **24A** - 24 V AC/DC | | **2** - 8 pin SPDT |
| | **120A** - 120 V AC | | **3** - 11 pin DPDT |
| | **230A** - 230 V AC | | |

*Limited to Nine Operating Functions

**Example P/N:   TRDU120A2**

# Multifunction
## TRDU Series
## Time Delay Relay

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## Technical Data

### Time Delay

| | |
|---|---|
| Type | Microcontroller |
| Range: Switch Selectable** | Single Functions: 0.1 s ... 1,705 h in 8 ranges |
| | Dual Functions: 0.1 s ... 3,100 m each in 8 ranges |
| Adjustments | Three switches are provided to set secs/mins & multipliers of x0.1, x1, x10, or x100 |
| Setting Accuracy | +/-1% or 50 ms, whichever is greater |
| Repeat Accuracy | +/-0.1% or 20 ms, whichever is greater |
| Timing Functions | Five switches are provided to set one of twenty-one single or dual functions |
| Reset Time | ≤ 50 ms |
| Initiate Time | 120 V AC: 75 ms |
| Time Delay vs. Temp. & Voltage | +/-1% |

### Indication

| | |
|---|---|
| Two LED's indicate | 1) Input voltage applied; 2) Output relay status |

### Input

| | |
|---|---|
| Voltage | 12 V DC, 24 V AC/DC, 120 V AC, or 230 V AC |
| Tolerance   12 V DC & 24 V DC/AC | -15% ... +20% |
| 120 & 230 V AC | -20% ... +10% |
| Frequency | 50 ... 60 Hz |
| Power Consumption | 24 ... 230 V ≤ 3 W; 12 V DC ≤ 2 W |

### Output

| | |
|---|---|
| Type | Electromechanical relay |
| Form | SPDT or DPDT |
| Rating | 10 A resistive at 120/240 V AC & 28 V DC; 1/3 hp at 120/240 V AC |
| Life | Mechanical – $1 \times 10^7$; Electrical – $1 \times 10^6$ |

### Protection

| | |
|---|---|
| Isolation Voltage | ≥ 1500 V RMS input to output |
| Insulation Resistance | ≥ 100 MΩ |
| Polarity | DC units are reverse polarity protected |

### Mechanical

| | |
|---|---|
| Mounting | Plug-in socket |
| Package | 3.1 x 2.39 x 1.78 in. (78.7 x 60.7 x 45.2 mm) |
| Termination | Octal plug (8 Pin) or Magnal plug (11 Pin) |

### Environmental

| | |
|---|---|
| Operating Temperature | -20°C ... +65°C |
| Storage Temperature | -40°C ... +85°C |
| Weight | ≅ 5.8 oz (164 g) |

**For CE approved applications, power must be removed from the unit when a switch position is changed.
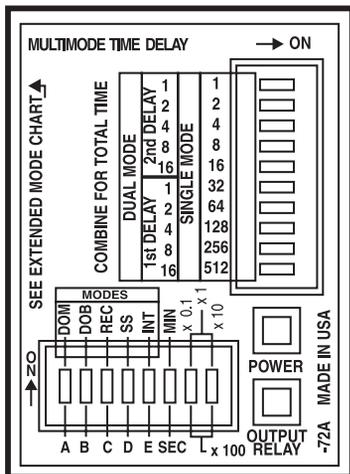


**Mechanical View**
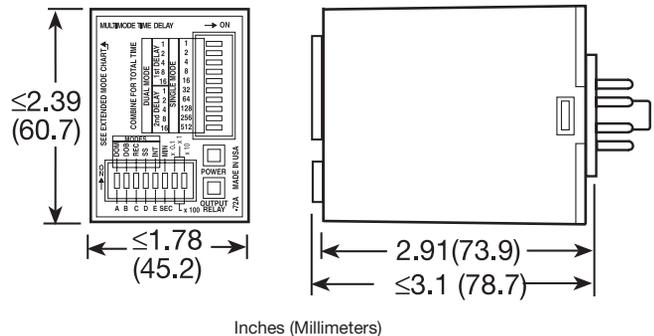


Inches (Millimeters)

# Multifunction, Multirange
## TRU Series
## Universal Time Delay Relay

**4**

■ Microcontroller +/-0.1% Repeat Accuracy
■ Six Timing Functions are Switch Selectable
■ 0.1 s ... 1000 m in Six Ranges
■ Knob Adjustable Time Delay
■ Universal Input Voltage 19...264 V AC & 19...30 V DC
■ 10 A, SPDT or DPDT Relay Contacts

Approvals: **UL** **CSA**
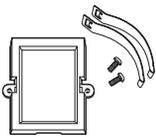
## Accessories

Panel mount kit
P/N: **BZ1**
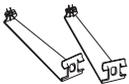
Hold down clips
P/Ns:
**PSC8** (NDS-8)
**PSC11** (NDS-11)
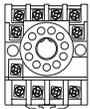
11 pin socket
P/N: **NDS-11**

Octal
8 pin socket
P/N: **NDS-8**

See accessory pages for specifications.

## Description
The TRU Series is a multifunction, knob adjustable, Universal Time Delay Relay. It includes six of the most popular timing functions selected by a slide switch. The time delay is knob adjustable and the time delay range is switch selectable. The repeat accuracy is ± 0.1%. Both function and time range can be selected on the top face of the unit. In addition to multifunctioning and multiple time ranges, the TRU Series features universal input voltage; 19 to 264 V AC and 19 to 30 V DC and full 10 A output relay. The TRU Series can directly replace up to 1000 competitive time delay relay models.

## Operation
A six position slide switch selects Delay on Make, Interval, Single Shot, Recycling (ON time first), Delay on Break, and Retriggerable Single Shot. 8 Pin DPDT base wiring is limited to Delay on Make, Interval, and Recycling functions. All six functions are available in the 8 pin SPDT and 11 pin DPDT versions.

## Connection
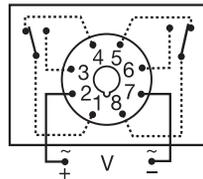
8 Pin DPDT

Delay On Make
Interval
Recycling
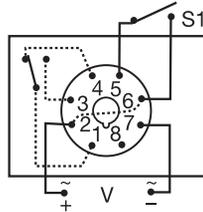
8 Pin SPDT

Delay On Make
Interval
Single Shot
Recycling (ON Time First)
Delay on Break
Retriggerable Single Shot
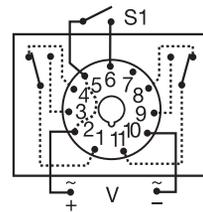
11 Pin DPDT

S1 = Initiate Switch

Dashed lines are internal connections.
Relay contacts are isolated.

## Function

Delay on Make

Interval

Recycle

Delay on Break

Single Shot

Retriggerable Single Shot
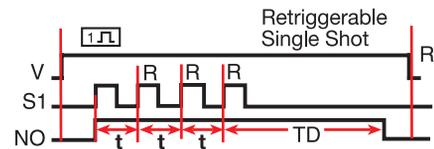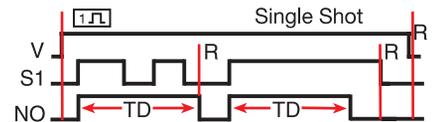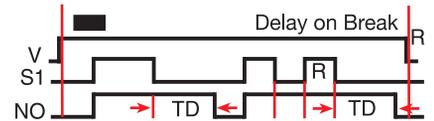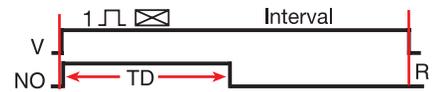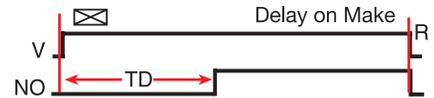
V = Voltage    S1 = Initiate Switch    R = Reset    TD = Time Delay    NO = Normally Open Contact    t = Incomplete Time Delay

## Ordering Table

| Voltage | Base Wiring | Functions | Part Number |
|---|---|---|---|
| 19 ... 264 V AC; 19 ... 30 V DC | 8 pin DPDT | 3 | TRU1 |
| 19 ... 264 V AC; 19 ... 30 V DC | 8 pin SPDT | 6 | TRU2 |
| 19 ... 264 V AC; 19 ... 30 V DC | 11 pin DPDT | 6 | TRU3 |

# Multifunction, Multirange
## TRU Series
## Universal Time Delay Relay

Multifunction timers

**4**

## Technical Data

| | |
|---|---|
| **Time Delay** | |
| Type | Digital integrated circuitry |
| Range: Switch Selectable** | 0.1 s ... 1000 m in 6 ranges--0.1 ... 10, 1 ... 100 or 10 ... 1000 s; 0.1 ... 10, 1 ... 100 or 10 ... 1000 m |
| Adjustments | Multiplier: 4 position DIP switch selects x0.1, x1, x10, and s or m |
| | Time Setting: Onboard knob adjustment with 1 ... 100 reference dial |
| LED Indication | Two LED's indicate input voltage applied & output relay status |
| Repeat Accuracy | +/-0.1%, or +/-20 ms, whichever is greater |
| Reset Time | ≤ 300 ms |
| Time Delay vs. Temp. & Voltage | +/-2% |
| **Input** | |
| Voltage--Universal Input Range | 19 ... 264 V AC and 19 ... 30 V DC |
| Line Frequency | 50 ... 60 Hz |
| **Output** | |
| Type | Electromechanical relay |
| Form | Isolated SPDT & DPDT |
| Rating | 10 A resistive at 120/240 V AC & 28 V DC; 1/3 hp at 120/240 V AC |
| Life | Mechanical: $1 \times 10^7$;  Electrical: $1 \times 10^6$ |
| **Protection** | |
| Transient | 38 joules |
| Isolation Voltage | ≥ 1500 V RMS input to output |
| Polarity | DC units are reversed polarity protected |
| **Mechanical** | |
| Mounting | Plug-in socket |
| Package | 3.44 x 2.39 x 1.78 in. (87.3 x 60.7 x 45.2 mm) |
| Termination | Octal plug (8 Pin) or magnal plug (11 Pin) |
| **Environmental** | |
| Operating Temperature | -20°C ... +65°C |
| Storage Temperature | -30°C ... +85°C |
| Weight | ≅ 6 oz (170 g) |

** For CE approved applications, power must be removed when a switch position is changed.
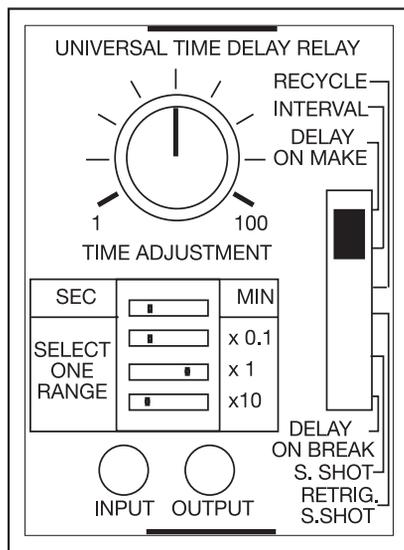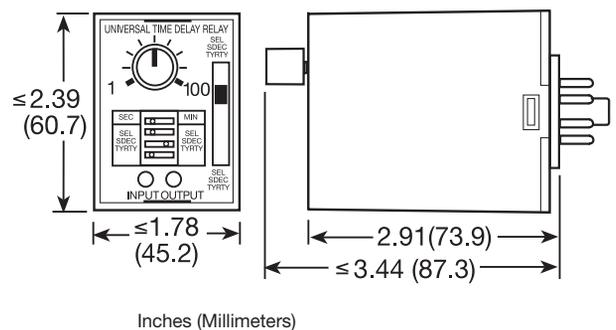


**Mechanical View**



Inches (Millimeters)

TRU02B01   07.29.04


Low Voltage Products & Systems

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4.7

1TRC 001 009 C0202

# Knob Adjustable Universal Timer
## ASQU/ASTU MicroTime
## Timing Module

CE

**4**

TEN YEAR WARRANTY 10

- 17.5 mm Package for High Rail Density
- Microprocessor Controlled with +/-1% Repeat Accuracy
- Multimode: 5 Selectable Functions
- Multirange: Knob Adjustable from 0.1 s ... 100 m
- Multivoltage: 24 ... 240 V AC or 9 ... 110 V DC
- 0.7 A Steady, 10 A Inrush Rated Solid State Output

Approvals: UL CSA

## Description

The ASQU/ASTU Series of 17.5 mm, knob adjustable, universal solid state timers offer multiple functions, voltages, and time delay ranges. Choose one of 5 functions and 4 time delay ranges via 4 selection switches located on top of the unit. Adjustment through the time range is accomplished by an onboard knob.

## Adjustment

| | |
|---|---|
| DOM | A ▣ B ▣ |
| SS | A ▣ B ▣ |
| R | A ▣ B ▣ |
| DOB | A ▣ B ▣ |

| R | M | S | |
|---|---|---|---|
| 0.1...10s | X1s | C ▣ | E D ▣ F |
| 1...100s | X10s | C ▣ | E D ▣ F |
| 10...1000s | X100s | C ▣ | E D ▣ F |
| 1...100m | X10m | C ▣ | E D ▣ F |

DOM = Delay On Make
SS = Single Shot/Interval
R = Recycling
DOB = Delay On Break

R = Range
M = Multiplier
S = Setting

## Connection

Delay on Make & Recycling



Single Shot, Interval & Delay on Break



V = Voltage    L = Load    J = Wire Required for Interval Operation
S1 = Initiate Switch    UTL = Optional Untimed Load

## Function


Delay on Make


Interval


Recycling


Delay on Break


Single Shot

R = Reset    TD = Time Delay
t = Incomplete Time Delay
TD1 = TD2

## Accessories

Female quick connect P/Ns:

**P1015-13** (AWG 10/12)
**P1015-64** (AWG 14/16)
**P1015-14** (AWG 18/22)

See accessory pages for specifications.

## Ordering Table



**X**
Series
─ **ASQU** - Quick Connects
└ **ASTU** - Terminal Blocks

**X**
Input
─**A** - Universal AC Voltage (24 ... 240 V AC)
└**D** - Universal DC Voltage (9 ... 110 V DC)

**X**
Base Adaptors
└ **3** - Both - Surface & DIN Rail Adaptors, with Quick Mount Fasteners

**Example P/N:** **ASQUA3, ASTUD3**

# Knob Adjustable Universal Timer
## ASQU/ASTU MicroTime
## Timing Module

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## Technical Data

| | |
|---|---|
| **Time Delay** | |
| Type | Microcontroller based with ceramic resonator and watchdog circuitry |
| Adjustment and Range* | Knob with dial; 2 switches select 1 of 4 multipliers |
| | x1s = 0.1 ... 10 s;   x10s =  1 ... 100 s;   x100s = 10 ... 1000 s;   x10m = 1 ... 100 m |
| Repeat Accuracy | +/-1%, or +/-50 ms, whichever is greater |
| Tolerance (Factory Calibration) | +/-2%, or +/-50 ms, whichever is greater |
| Reset Time | ≤ 300 ms |
| Initiate Time | Single Shot & Delay on Break:  ≤ 32 ms |
| Time Delay vs. Temp. & Voltage | +/-2%, or +/-50 ms, whichever is greater |
| **Input** | |
| Voltage | AC: 24 ... 240 V AC; -20% ... +10% |
| | DC: 9 ... 110 V DC; -0% ... +20% at -25°C |
| | 9.4 ...110 V DC; -0% ... +20% at -40°C |
| AC Line Frequency | 50 ... 60 Hz |
| DC Ripple | ≤ 10% |
| **Output** | |
| Type | Solid state |
| Form | Normally Open |
| Rating | 0.7 A steady state, 10 A inrush |
| Voltage Drop | AC: ≅ 2.5 V at 0.7 A; DC: ≅ 1.5 V at 0.7 A |
| **Protection** | |
| Surge | IEEE C62.41-1991 Level A |
| Circuitry | Encapsulated |
| Dielectric Breakdown | ≥ 2000 V RMS terminals to mounting surface |
| Polarity | DC units are reverse polarity protected |
| **Mechanical** | |
| Mounting | Two base adaptors are available |
|     DIN Rail | Snap on to 32 mm DIN 1 & 35 mm DIN 3 rail |
|     Surface | Two #6 (M3.5 x 0.6) screws or quick mount fasteners |
| Termination | |
|     ASQU | 0.25 in. (6.35 mm) male quick connect terminals |
|     ASTU | 0.197 in. (5 mm) push-on terminal blocks for up to #14 AWG (2.5 mm²) wire |
| **Environmental** | |
| Operating Temperature | -40°C ... +60°C |
| Storage Temperature | -40°C ... +85°C |
| Humidity | 95% relative, non-condensing |
| Weight | ≅ 4 oz (113 g) |

*For CE approved applications, power must be removed from the unit when a switch position is changed.

## Mechanical View



TB = Push-on Terminal Blocks

Inches (Millimeters)

# Switch Adjustable Universal Timer
## DSQU/DSTU MicroTime
## Timing Module

CE

**4**

TEN YEAR WARRANTY 10
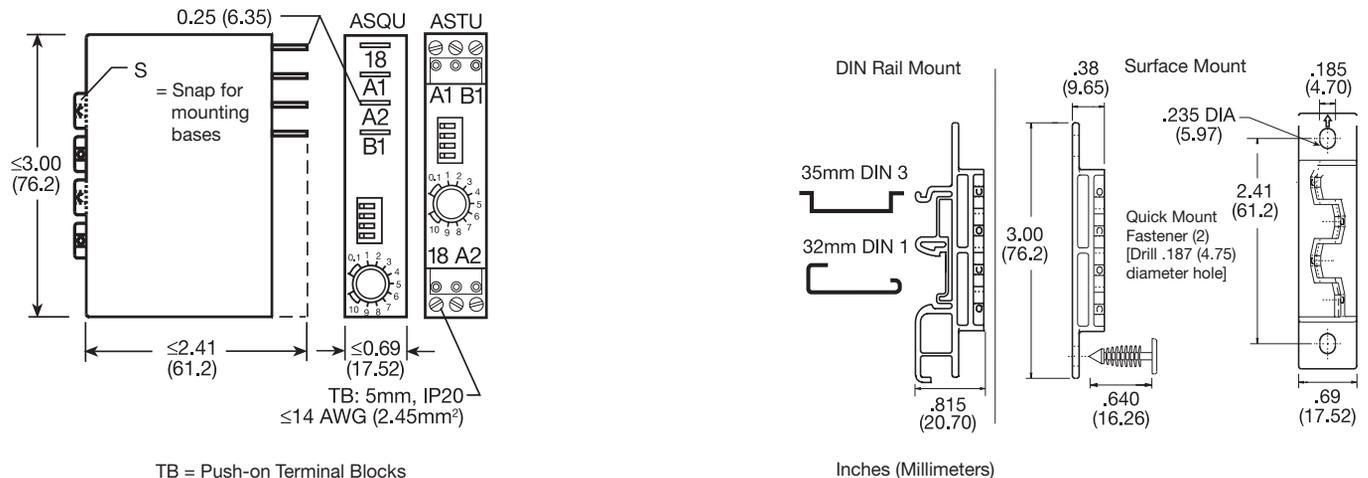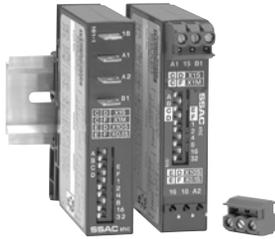
- 17.5 mm Package for High Rail Density
- Microprocessor Controlled with +/-0.1% Timing Accuracy
- Multimode: 5 Selectable Functions
- Multirange: Switch Adjust from 0.1 s ... 63 m
- Multivoltage: 24 ... 240 V AC or 9 ... 110 V DC
- 0.7 A Steady, 10 A Inrush Rated Solid State Output

Approvals:

## Description

The DSQU/DSTU Series of 17.5 mm, switch adjustable, universal solid state timers offer multiple functions, voltages, and time delay ranges.  Choose one of 5 functions and 4 time delay ranges via 4 selection switches located on top of the unit.  Six switches adjust the time delay through the selected range.

## Adjustment



| | R | M | S | I |
|---|---|---|---|---|
| DOM | 0.1 ... 6.3s | X0.1s | C□ E / D□ F | 0.1s |
| SS | 1 ... 63s | X1s | C□ E / D□ F | 1s |
| R | 10 ... 630s | X10s | C□ E / D□ F | 10s |
| DOB | 1 ... 63m | X1m | C□ E / D□ F | 1m |

### Time Delay Adjustment
→ ON

1
2
4
8
16
32
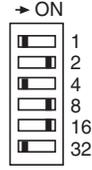
Add switches in ON Position
TD = 2+8+16=26

DOM = Delay On Make    R = Range
SS = Single Shot/Interval    M = Multiplier
R = Recycling    S = Setting
DOB = Delay On Break    I = Increments of Time
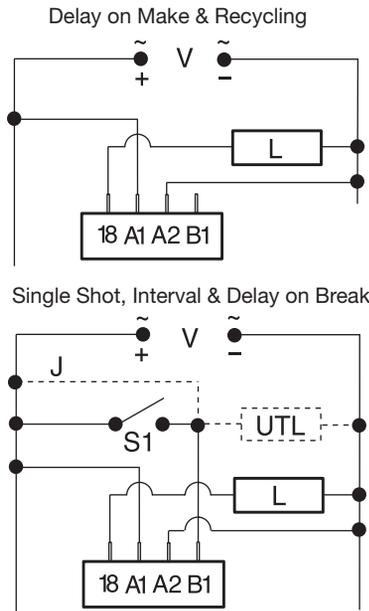
## Function

Delay on Make
A1/A2
18
TD
R

Interval
A1/A2
18
TD
R

Recycling
A1/A2
18
TD1 TD2 TD1 TD2 TD1 TD2 TD1 **t** R
R

Delay on Break
A1/A2
S1-B1
18
TD   t   TD
R

Single Shot
A1/A2
S1-B1
18
TD   R   TD   R
R
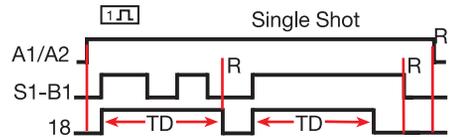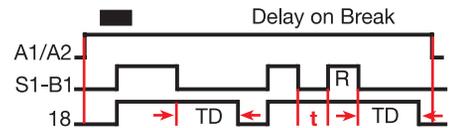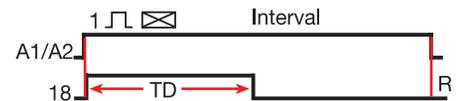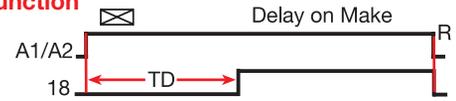
R = Reset    TD = Time Delay
t = Incomplete Time Delay
TD1 = TD2

For Function Descriptions, See Timer Function Section

## Connection

### Delay on Make & Recycling



~ V ~
+ −
L
18 A1 A2 B1

### Single Shot, Interval & Delay on Break



~ V ~
+ −
J
S1
UTL
L
18 A1 A2 B1

V = Voltage    L = Load    J = Wire Required for Interval Operation
S1 = Initiate Switch    UTL = Optional Untimed Load

## Accessories

Female quick connect P/Ns:

**P1015-13** (AWG 10/12)
**P1015-64** (AWG 14/16)
**P1015-14** (AWG 18/22)

See accessory pages for specifications.

## Ordering Table

| X | | X | | X | |
|---|---|---|---|---|---|
| **Series** | | **Input** | | **Base Adaptors** | |
| **DSQU** - | Quick Connects | **A** - | Universal AC Voltage (24 ... 240 V AC) | **3** - | Both - Surface & DIN Rail Adaptors, with Quick Mount Fasteners |
| **DSTU** - | Terminal Blocks | **D** - | Universal DC Voltage (9 ... 110 V DC) | | |

**Example P/N:**   **DSQUA3,  DSTUD3**

# Switch Adjustable Universal Timer
## DSQU/DSTU MicroTime
## Timing Module

## Technical Data

| | |
|---|---|
| **Time Delay** | |
| Type | Microcontroller based with ceramic resonator and watchdog circuitry |
| Adjustment and Range* | 6 switches adjust the time delay; |
| | 2 switches select 1 of 4 multipliers; |
| | x0.1s = 0.1 ... 6.3 s in 0.1 s increments |
| | x1s = 1 ... 63 s in 1 s increments |
| | x10s = 10 ... 630 s in 10 s increments |
| | x1m = 1 ... 63 m in 1 m increments |
| Repeat Accuracy | +/-0.1% or +/-20 ms, whichever is greater |
| Setting Accuracy | +/-2% or +/-50 ms, whichever is greater |
| Reset Time | ≤ 300 ms |
| Initiate Time | Single Shot & Delay on Break: ≤ 32 ms |
| Time Delay vs. Temp. & Voltage | +/-2% or +/-50 ms, whichever is greater |
| **Input** | |
| Voltage | AC: 24 ... 240 V AC; -20% ... +10% |
| | DC: 9 ... 110 V DC; -0% ... +20% @ -25°C |
| | 9.4 ...110 V DC; -0% ... +20% @ -40°C |
| AC Line Frequency | 50 ... 60 Hz |
| DC Ripple | ≤ 10% |
| **Output** | |
| Type | Solid state |
| Form | Normally Open |
| Rating | 0.7 A steady state, 10 A inrush |
| Voltage Drop | AC: ≅ 2.5 V at 0.7 A; DC: ≅ 1.5 V at 0.7 A |
| **Protection** | |
| Surge | IEEE C62.41-1991 Level A |
| Circuitry | Encapsulated |
| Dielectric Breakdown | ≥ 2000 V RMS terminals to mounting surface |
| Polarity | DC units are reverse polarity protected |
| **Mechanical** | |
| Mounting | Two base adaptors are available |
| DIN Rail | Snap on to 32 mm DIN 1 & 35 mm DIN 3 rail |
| Surface | Two #6 (M3.5 x 0.6) screws or quick mount fasteners |
| Termination | |
| DSQU | 0.25 in. (6.35 mm) male quick connect terminals |
| DSTU | 0.197 in. (5 mm) push-on terminal blocks for up to #14 AWG (2.5 mm²) wire |
| **Environmental** | |
| Operating Temperature | -40°C ... +60°C |
| Storage Temperature | -40°C ... +85°C |
| Humidity | 95% relative, non-condensing |
| Weight | ≅ 4.2 oz (119 g) |

*For CE approved applications, power must be removed from the unit when a switch position is changed.

## Mechanical View



DSQU

DSTU

S = Snap for mounting bases

18
A1
A2
B1

A1 B1

18 A2

≤3.00 (76.2)

0.25 (6.35)

≤2.41 (61.2)

≤0.69 (17.52)

TB: 5mm, IP20 ≤14 AWG (2.45mm²)

TB = Push-on Terminal Blocks

DIN Rail Mount

35mm DIN 3

32mm DIN 1

.38 (9.65)

3.00 (76.2)

.815 (20.70)

Surface Mount

.185 (4.70)

.235 DIA (5.97)

Quick Mount Fastener (2) [Drill .187 (4.75) diameter hole]

2.41 (61.2)

.640 (16.26)

.69 (17.52)

Inches (Millimeters)

# Notes

**4**